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Analyzing the Motivations of U.S. Development Aid to Africa

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Analyzing the Motivations of U.S. Development Aid to Africa

by

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Dedication

To my parents, for the countless things they made possible for me. And to the friends and loved ones who provided endless encouragement and sugary goods to help me through the process of writing this report.

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This report would not have been possible without the guidance and support of Dr. Catherine Weaver and Dr. Michael Findley. I am grateful to both for their patience and constructive feedback as I navigated my way through the process of developing a meaningful research project. Any errors, omissions, or inadequacies in this report are entirely my own.

Abstract

Analyzing the Motivations of U.S. Development Aid to Africa

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The University of Texas at Austin, 2013

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Research literature on foreign assistance suggests that the U.S. provides aid in order to serve both its own strategic interests as well as the development needs of aid recipient countries. Maintaining a focus on Africa, this report uses newly available data for official development assistance and attempts to verify whether prevailing hypotheses regarding the motivations behind U.S. aid giving still hold true. Specifically, the report analyzes whether aid giving patterns align with 1) the development needs of recipient countries as understood through the lens of internationally established priorities, or 2) with good political and economic policies within recipient countries vis-à-vis democratic institutions and open markets, or 3) with U.S. national strategic interests (be they political, military, or economic interests).

A statistical analysis of U.S. Official Development Assistance (ODA) to 53 countries in Africa over the period of 1970 to 2010 was carried out for this purpose. The results suggest that, when it comes to aid that is specifically addressed towards development projects in Africa, the strategic considerations and political priorities of the U.S. are just as important, if not more important, than the development needs or

economic performance of recipient countries. Political allies and countries that democratize receive more aid from the U.S., ceteris paribus. In addition, it was found that more aid is given to countries with larger populations -- a result that contradicts earlier literature on aid's motivations.

The report is organized as follows. I begin in Section 1 by providing a general overview of U.S. foreign aid. In Section 2, I detail why Africa is a significant continent for such an analysis of U.S. aid, and outline some of the trends in aid to Africa. The third section summarizes some of the most important existing hypotheses about why the U.S. gives development aid. Section 4 describes the data and methodology used for this study and provides a discussion of the results obtained from the statistical analysis. Finally, in Section 6, I conclude by offering broader policy implications and sketching out avenues for future research.

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Section I: Why Does the U.S. Give Aid and to Whom?

A. Overview of U.S. Development Aid

The United States is currently the world's largest development aid donor. According to data from the Organization for Economic Cooperation and Development's Development Assistance Committee (OECD DAC), gross disbursements of U.S. Bilateral Official Development Assistance (ODA) totaled 32 billion (constant USD) in 2011. This figure represents 0.2 percent of United States' Gross National Income (GNI) and 21.5 percent of the total bilateral ODA disbursements in that year by all DAC countries. Figure 1 shows U.S. ODA compared to that of other donor countries in 2011. Japan, Germany, France, and the U.K. have the highest volume of aid flows respectively after the U.S.

Even though the U.S. is the largest donor in terms of the dollar amount provided, as a percentage of its GNI, the U.S. presently falls behind many other donor countries in the realization of its global commitment to the 0.7 percent target. In a 1970 United Nations General Assembly Resolution, governments of developed countries pledged to commit 0.7 percent of their GNI to development assistance. This commitment was reaffirmed at the 2002 International Conference on Financing for Development in Monterrey, Mexico. Development experts contended that the fulfillment of this commitment was crucial to the achievement of the Millennium Development Goals by the targeted deadline of 2015.

Figure 2 shows the ODA disbursements of donor countries as a percentage of their GNI in 2011. Iceland, Australia, and Sweden lead the forefront with 2.09, 1.19, and 1.09 percent of their GNI committed to ODA. United States is third to last in this list, preceding only Greece and Korea in its aid disbursement as a percent of GNI.

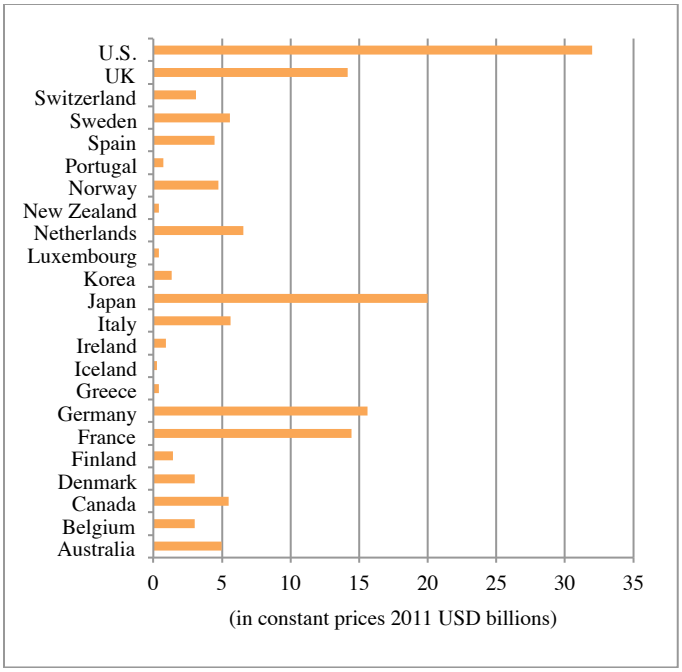

Figure 1: ODA Disbursements in 2011 by DAC Countries[1]

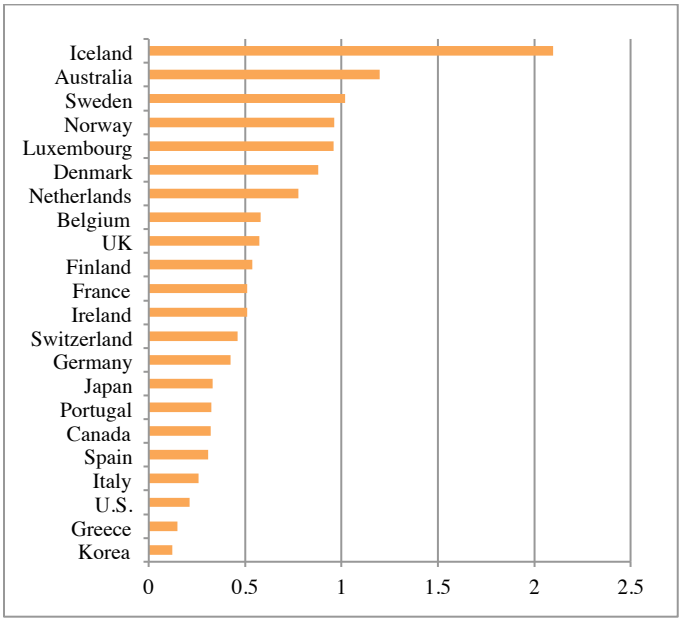

Figure 2: Disbursements as Percentage of DAC Country's GNI in 2011[2]

[1] Figures taken from OECD Statistics (http://stats.oecd.org/)

[2] Figures taken from OECD Statistics and World Bank Data (http://data.worldbank.org/)

Despite the fact that U.S. development aid falls short of the 0.7 percent target, the disbursements have steadily increased over the years -- from a little over 15 billion USD in 1960 to over 30 billion USD in 2010 (in constant 2011 prices). Figure 3 shows ODA disbursements over this period. Aid amounts decreased in the period between 1995 and 2000, but increased after the 9/11 attacks once again in 2001. Similarly, 2008 saw a sharp decrease in aid amounts most likely due to the financial crisis. However, development aid amounts increased again after that period.

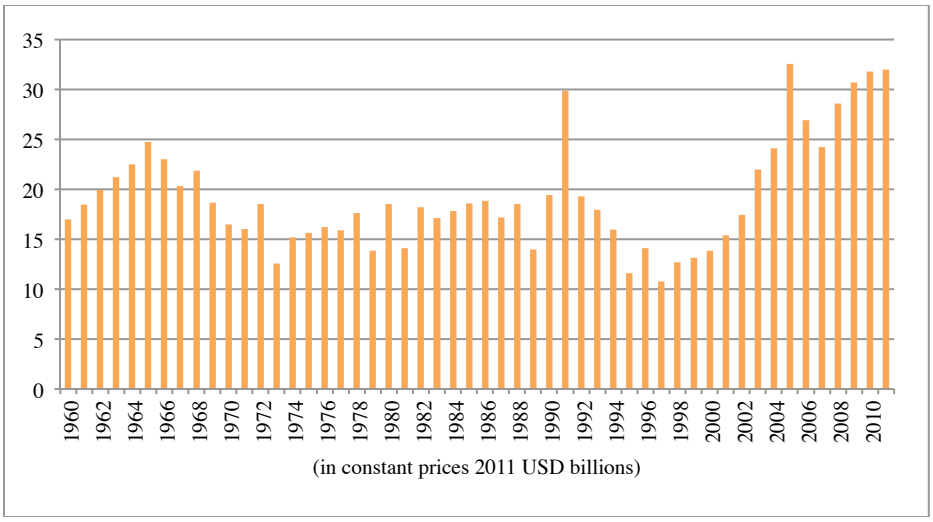

Figure 3: U.S. Bilateral ODA Disbursements[3]

B. Why Does the U.S. Provide Aid

The United State's rationale for providing foreign aid has traditionally been driven by three motivations:[4]

[3] Figures taken from OECD Statistics (http://stats.oecd.org/)
[4] Tarnoff and Lawson 2011

- Humanitarian assistance - As a response to natural disasters and human calamities, aid aimed at relieving human suffering.
- Expansion of markets - In order to boost trade and domestic economic growth by developing U.S. export markets abroad and creating a suitable commercial environment for U.S. companies to compete in.
- Preservation of national security - Since the terrorist attacks on September 11, 2001 especially, policy makers have increasingly viewed development aid as a valuable tool in the global 'war on terrorism', through strengthening ties with allies as well as helping them build their economies and democratic institutions.

The U.S. Government also regards foreign aid as an instrumental foreign diplomacy tool (carrot vs. the stick). Its use has been evident in strategic U.S. partnerships around the world, especially in dealings with non-friendly governments. Further, aid is viewed as a manifestation of U.S. global leadership both in bilateral forums as well as multilateral institutions such as the World Bank and United Nations.

C. WHERE IS THIS AID GOING

In addition to the changing trends in volume, the composition of United States' foreign aid has changed over the years as well reflecting a landscape of shifting priorities. The U.S. provided ODA to a total of 149 countries in 2010[5]. Table 1 gives a breakdown of the top recipients of U.S. foreign assistance in 2000 and 2010. The list reflects a mixture of long standing development aid commitments with and the political-military strategic significance to the U.S. of these countries, in varying proportions. For instance,

[5] Tarnoff and Lawson 2011

the large share of foreign aid provided to Afghanistan and Iraq reflects U.S. engagements in both countries vis-à-vis the ongoing military conflict. Aid to countries such as Pakistan and Egypt is viewed through the lens of the strategic significance of these regions to U.S. interests - in the case of Pakistan, its proximity to Afghanistan and its relevance in the War on Terror; and in the case of Egypt, its ties with the Arab World and its ability to mediate in the Israel-Palestine conflict.

2000	Foreign Assistance (in current USD millions)	2010	Foreign Assistance (in current USD millions)
Israel	4,069	**Afghanistan**	4,102
Egypt	2,053	**Israel**	2,220
Colombia	899	**Pakistan**	1,807
West Bank/Gaza	485	**Egypt**	1,296
Jordan	429	**Haiti**	1,271
Russia	195	**Iraq**	1,117
Bolivia	194	**Jordan**	693
Ukraine	183	**Kenya**	688
Kosovo	165	**Nigeria**	614
Peru	120	**South Africa**	578
Georgia	112	**Ethiopia**	533
Armenia	104	**Colombia**	507

Table 1: Top Recipients of U.S. Foreign Assistance[6]

[6] Tarnoff and Lawson 2011

U.S. foreign aid is distributed for a variety of development assistance purposes. Figure 4 shows the sectors for which the FY2012 Department of State and the Millennium Challenge Corporation (MCC) foreign aid disbursements were made. Even though the chart only depicts data for two of the total 16 aid agencies within the U.S., this is a helpful snapshot of some of the main funding priorities of U.S. aid in terms of the categories it is addressed towards.

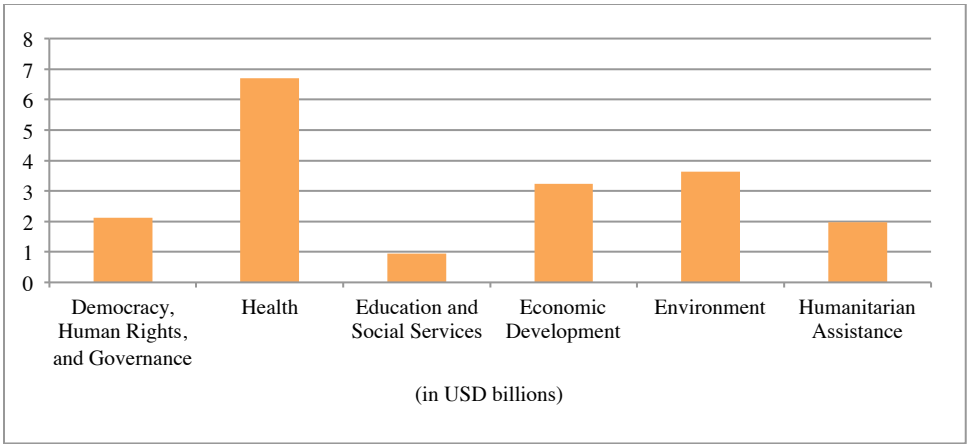

Figure 4: Sectoral Distribution of U.S. Foreign Aid in 2012[7]

With close to seven billion USD requested in funds, the health sector receives the most attention by the State Department and MCC. U.S. foreign aid in this category goes towards programs to combat diseases such as HIV/AIDS, tuberculosis, malaria, pandemic influenza and other emerging public health threats, as well as towards maternal and child health, family planning and reproductive health, water supply and sanitation, and nutrition. Economic development and environmental assistance follow with close to 4 billion USD each.

[7] Figures taken from USAID Foreign Assistance Dashboard (http://foreignassistance.gov/Default.aspx)

D. How is this Aid Distributed

In terms of aid channels, currently most U.S. foreign aid is disbursed bilaterally, i.e. from government to government. In recent years this trend has largely been driven by the creation and subsequent disbursements of the Millennium Challenge Corporation and the Global AIDS Initiative in 2004 under the administration of former President George W. Bush. In FY2010, bilateral aid accounted for USD 12.3 billion or 32 percent of total foreign assistance appropriations for that year.[8] In contrast, only USD 2.6 billion or 7 percent was appropriated for multilateral aid contributions to international institutions.

There are 16 U.S. government agencies that fund bilateral foreign aid activities. The principal five of these agencies providing bilateral economic assistance are:[9]

- U.S. Agency for International Development (USAID)
- State Department
- U.S. Department of Agriculture (USDA)
- Department of Defense (DoD)
- Millennium Challenge Corporation (MCC)

Combined, these five agencies account for about 88 percent of total development assistance obligations. USAID and the State Department have the largest contribution in foreign aid obligations with 35 percent each.

U.S. multilateral foreign aid is disbursed through channels such as the various United Nations Funds and Programs as well as through development banks such as the World Bank. On average, U.S. contributions represent 20 percent of total donor transfers to multilateral development banks.[10]

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[8] Figures taken from OECD Statistics (http://stats.oecd.org/)
[9] USAID Foreign Assistance Database (http://gbk.eads.usaidallnet.gov/)
[10] Tarnoff and Lawson 2011

Section II: Overview of U.S. Aid to Africa

Africa is the second largest and second most populous continent in the world. (See Appendix 1 for a map of Africa) Given its abundant natural and human resources, when several African countries entered into a period of de-colonization and began to engage in the process of democratization, many people thought that the continent's time had come.

Unfortunately, over the last few decades, Africa has come to represent a significant development challenge for global policy makers. Illiteracy, low mortality rates and poor economic progress continue to persist in several parts of the region despite the large amount of aid money that has been funneled into it over the years. For instance, in 1970 the total ODA provided to Africa from all aid donors amounted to 1.68 billion (current prices USD). In 1990, the amount had increased to 26.18 billion and in 2010 to 47.97 billion.[11]

Figure 5 shows the total bilateral aid to Africa (as an aggregate of 53 countries) from the U.S. from 1980 to 2010. As the figure illustrates, U.S. assistance to the continent has grown steadily over the years. In 1980, the amount committed was 3.9 billion and in 2010 development aid equaled 8.28 billion (in constant 2009 USD). An interesting point to note is the 1991 spike in bilateral aid. The increase is attributed to the 8.6 billion committed for Egypt in that year, which was driven by the importance of the country with regards to the Gulf War.

[11] Figures taken from OECD QWIDS (http://stats.oecd.org/qwids/)

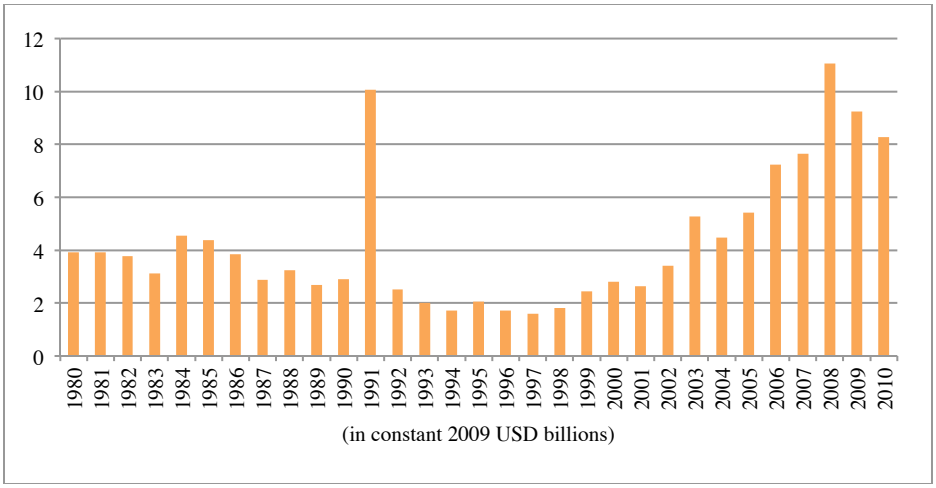

Figure 5: Total U.S. Bilateral Development Aid to Africa [12]

The trend of increasing aid to Africa is also apparent in the sectors of education and health assistance. Figure 6 illustrates the increase in U.S. development aid disbursed for these purposes.

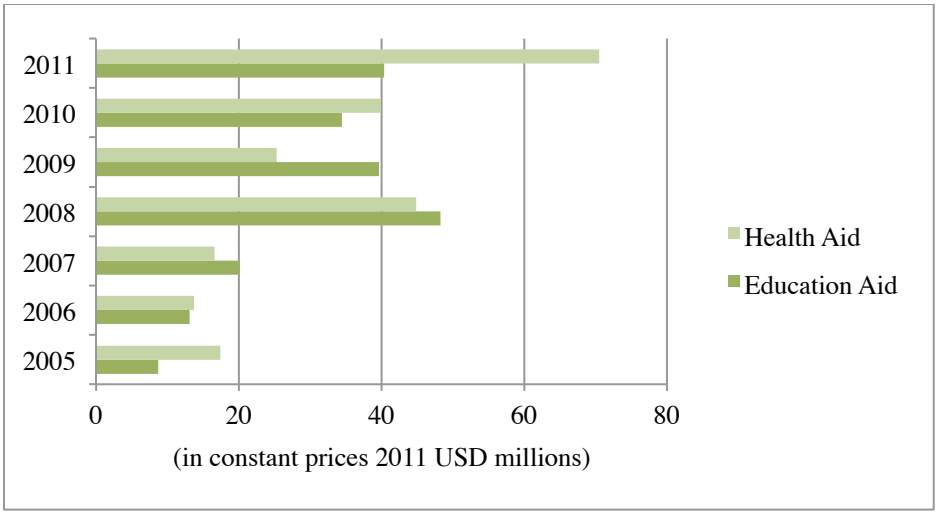

Figure 6: ODA Disbursed for Health and Education Purposes[13]

[12] Figures taken from AidData 2.0 (http://www.aiddata.org/content/index/data-search)
[13] Figures taken from OECD QWIDS (http://stats.oecd.org/qwids/)

Although U.S. aid disbursements to Africa have increased over the years, the trend is not uniform across all the recipients -- some countries have historically received more aid than others. The following is a snapshot of U.S. development aid committed in 2010. Countries were picked randomly to offer a sample. Aid amounts range from 0.09 million for Kenya to 972.65 million USD for Ethiopia.

Country	ODA Committed (in constant 2009 USD millions)
Algeria	13.43
Benin	66.23
Cote d'Ivoire	82.67
Djibouti	18.2
Egypt	338.93
Ethiopia	972.65
Ghana	241.4
Kenya	0.09
Morocco	42.43
Mozambique	384.34
Namibia	109.27
Nigeria	450.41
Uganda	439.54

Table 2: Bilateral ODA Committed to Sample African Countries in 2010[14]

[14] Figures taken from AidData 2.0 (http://www.aiddata.org/content/index/data-search)

WHY IS AFRICA AN INTERESTING REGION FOR ANALYSIS

African countries are certainly not the only ones struggling with development. But there are some distinctive features that make Africa a useful regional case for the purposes of this study, i.e. to analyze the motivations of U.S. aid. These factors are discussed below.

Historically, Africa has been the largest recipient of aid. In 2010, Africa (overall as a continent) received 36 percent of the total development aid given globally. As mentioned in the previous section, the amount of aid provided by the U.S. has risen steadily over the years. In addition, U.S. is the largest aid donor to this continent. In 2008, the U.S provided 16 percent of the net ODA disbursed to Africa.[15] Given the volume of aid over the last several years, Africa is a pertinent region to carry out a meaningful analysis of U.S. aid and its motivations.

Further, Africa has been identified as the continent of highest need. Most Africans live on less than two dollars a day; average life expectancy in several countries is less than 50 years; many regions have faced severe droughts or famines at different times; and several countries are struggling to overcome conflict and successfully democratize. Although all African countries are not homogenous in terms of their development issues, there is a critical need for development across the continent. Thus, analyzing development aid given to a continent of such high development needs can provide useful insights.

Finally, Africa also provides a good opportunity to re-test existing hypotheses regarding the motivations of U.S. aid giving (for instance development needs versus strategic interests). Some countries (such as Egypt) are of high strategic importance to the

[15] United Nations Office of the Special Advisor on Africa (OSAA) and the NEPAD-OECD Africa Investment Initiative 2010

U.S. and the amount of aid they receive can be a reflection of this relationship. Others only represent a development challenge and can be useful in analyzing whether development aid correlates with development needs.

In view of the factors mentioned above, Africa was chosen as the most suitable region to focus this report on.

Section III: Existing Hypotheses About U.S. Aid

Research on U.S. development aid generally focuses on two main aspects of aid giving trends. The first has to do with the purposes or motivations of aid giving. The central question asked by researchers is 'Why does the U.S. give aid?'. The second aspect of aid research considers the impact of U.S. development aid on recipient countries and asks 'Is U.S. aid effective?'. This report will attend to the former question.

LITERATURE REVIEW

R. D. McKinley and R. Little lay down much of the groundwork for subsequent literature on aid's purposes by differentiating between recipient needs and donor interests in relation to aid giving patterns.[16] Different researchers have found different results depending on the varying units of analysis employed, e.g. period of time included, particular donors considered, region focused on, and other explanatory variables.

D. H. Lumsdaine proposed a constructivist view of aid and detailed how allocation patterns are driven by a) humanitarian concerns based on the recipient's needs and b) moral ideals whereby powerful countries feel a moral obligation to help the weak -- a combination of which he refers to as "pro-social behavior" -- as opposed to donor interests.[17] In this conception, aid is perceived to align with the needs of recipient countries.

P. J. Schraeder et al. found some correlation between aid allocations and poverty in recipient countries (defined here using GDP per capita measures).[18] However, they found that when a more holistic view of poverty is considered, such as caloric intake or

[16] McKinley and Little 1979
[17] Lumsdaine 1993
[18] Schraeder, Hook and Taylor 1998

life expectancy, aid patterns are misaligned with recipient needs. Moreover, in their study of aid to Africa in the 1980s, they found evidence that strategic alliances, trade relations, and whether or not the recipient had a capitalist regime were stronger motivating factors for aid allocations.

Several other researchers have also found that the strategic interests of donors play a significant role in aid giving. For instance, A. Maizels and M. K. Nissanke analyzed how U.S. aid shifted towards a national strategic interest leaning during the 1980s.[19] A. Alesina and D. Dollar provided a comparative study of donor behavior and concluded that more U.S. aid is given to former colonies (of other donors) and countries that share the political stances of the U.S. within the UN.[20] E. Neumayer confirmed this strategic interest motive and detailed how this is not just limited to political considerations but also includes economic interests.[21] His study found that aid is motivated by the geographic proximity of recipient countries and their share in U.S. export markets.

G. Palmer et al. expanded the meaning of donor strategic interest and posited that aid is provided within the larger context of a donor's foreign policy portfolio.[22] Their study suggests that aid is directed towards encouraging recipient countries to behave in ways that are favorable to the donor. D. B. Carter and R. W. Stone also found evidence that supported this thesis and concluded that donors often use aid to "buy influence" with recipient governments.[23]

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[19] Maizels and Nissanke 1984
[20] Alesina and Dollar 2000
[21] Neumayer 2003
[22] Palmer, Wohlander and Morgan 2002
[23] Carter 2010

S. B. Bermeo extended the understanding of how strategic interests motivate aid giving.[24] Her studies showed that development aid has shifted from its traditional strategic motivations to a more strategic development overall. She concludes that donors give more aid to countries that are geographically closer to them, that have historic or economic ties with them, and those that send immigrants to their country.[25] Thus, aid giving is motivated by an interest to promote development in recipient countries where the returns from said development would be greatest to the donor itself.

In the past few years, a third dimension has also been introduced to the study of aid's motivations. This has been termed as the effect of good governance, and the question asked by researchers is whether donors provide more aid to countries that exhibit good governance vis-à-vis democratic institutions and/or open markets versus countries that have demonstrably bad institutions.

D. L. Cingranelli and T. E. Pasquarello found evidence of human rights considerations in U.S. economic aid to Latin America -- higher levels of aid were given to countries that performed better on the human rights front.[26] Similarly, S. C. Poe analyzed aid data from the Reagan and Carter Administrations for countries in the western hemisphere and found that human rights considerations were important in determining the trends in U.S. bilateral assistance.[27] [28] B. Abrams and K. Lewis found the same in their study on human rights and the motivations of U.S. foreign aid.[29]

D. Carleton and M. Stohl refuted these conclusions and found that the status of human rights in the recipient country does not actually influence the motivations of aid

[24] Bermeo 2008
[25] Bermeo 2010
[26] Cingranelli and Pasquarello 1985
[27] Poe 1992
[28] Poe, et al. 1994
[29] Abrams and Lewis 1993

giving. [30] Nor do some of the other factors of good governance. For instance, D. Dollar and V. Levin found that bilateral aid is not significantly related to the quality of governance.[31] J. Svensson found no evidence of countries with less corruption being rewarded with higher aid.[32] In fact, A. Alesina and B. Weder found evidence that, according to some measures of corruption, more corrupt states receive more aid.[33]

In conclusion, research literature on U.S. foreign aid and its motivations can best be summarized by what Lancaster calls the "enduring dualism" of U.S. aid -- diplomacy and development.[34] U.S. bilateral development aid contains elements of both political and economic strategic interest as well as values of human betterment.

[30] Carleton and Stohl 1987
[31] Dollar and Levin 2006
[32] Svensson 1999
[33] Alesina and Weder 2002
[34] Lancaster 2007

Section IV: Statistical Modeling of U.S. Aid Allocations

A. Objective of Study

The intent of this report is to analyze the motivations of U.S. aid to Africa. Although the stated motivations for foreign aid often voice a humanitarian imperative, it is worth remembering that foreign aid exists within a significant political realm. As the literature review above summarizes, U.S. aid is often not only motivated by the development needs of recipient countries but also by its own strategic interests or political priorities.

Maintaining a focus on Africa, this report attempts to verify whether prevailing hypotheses regarding the motivations behind U.S. aid giving still hold true. Specifically, the report analyzes whether aid giving patterns align with 1) the development needs of recipient countries as understood through the lens of internationally established priorities, or 2) with good political and economic policies within recipient countries vis-à-vis democratic institutions and open markets, or 3) with U.S. national strategic interests (be they political, military, or economic interests).

B. Data

The study looks at U.S. Bilateral Official Development Assistance (ODA) given to 53 countries in Africa from 1970 to 2010 (see Appendix 2 for list of countries included in analysis). OECD's Glossary of Statistical Terms defines ODA as: "Flows of official financing administered with the promotion of the economic development and welfare of developing countries as the main objective, and which are concessional in character with a grant element of at least 25 percent. By convention, ODA flows comprise contributions of donor government agencies, at all levels, to developing countries and to multilateral

institutions." ODA must be distinguished from the term 'foreign assistance', which consists of both military and economic assistance in the U.S. For the purposes of this report, only official development assistance is considered as aid.

ODA figures were taken from AidData 2.0 and reported in constant 2009 USD committed values. I constructed averages over five-year time periods beginning with 1971-75 and ending with 2006-10. This is a useful technique as it incorporates any lagged time effects that may exist, for instance from ODA budgeted in the previous year and disbursed in the next.

For the purposes of the study, I chose to include the following as independent variables (see Appendix 3 for a more detailed description of the data used and the sources):

- GDP per capita (PPP) in constant 2005 international dollars. Figures were taken from World Bank Data[35] for all countries and all years, and then averages were constructed for the five-year time periods.
- Total population size of all countries in all years. Figures were taken from World Bank Data and converted into averages of five-year periods.
- Infant mortality rate (per 1,000 live births) for all countries and in each year included in the study, averaged over the five-year time periods. Figures were taken from World Bank Data.
- Life expectancy at birth reported in total years for all countries and years included in study. These figures were also taken from World Bank Data and averaged over the time periods.

[35] World Bank Data (http://data.worldbank.org/indicator)

- Net inflow of foreign direct investment as percentage of country's GDP. According to World Bank Data (from where these figures were taken), this consists of "net inflows of investment to acquire a lasting management interest (10 percent or more of voting stock) in an enterprise operating in an economy other than that of the investor. It is the sum of equity capital, reinvestment of earnings, other long-term capital, and short-term capital as shown in the balance of payments."[36] Averages of five-year time periods were constructed for every country.
- Dummy variable for trade openness developed by J. Sachs and A. Warner and updated by R. Wacziarg and K. H. Welch (SWWW).[37] [38] A country was given a value of 0 and characterized as closed for the years it had any of the following:[39]
    - average tariff rates higher than 40 percent
    - non-tariff barriers covered on average more than 40 percent of imports
    - it had a socialist economic system
    - it had a state monopoly of major exports
    - its black market premium exceeded 20 percent

  The trade openness status of a country reported in the initial year of a time period was used for the entire five-year block.

[36] World Bank (http://data.worldbank.org/indicator/BX.KLT.DINV.WD.GD.ZS)
[37] Sachs, et al. 1995
[38] Wacziarg and Welch 2008
[39] Rodriguez and Rodrik 2001

- Political rights in a country. An index produced by Freedom House[40] every year since 1972 in which all countries are given a score from 1 to 7; where 1 means most free and 7 means least free. Averages were constructed for all scores over the five-year time periods.
- Civil liberties in a country. Also produced by Freedom House and on the same 1-7 scale as political rights. Correlates about 0.9 with the political rights variable.
- Total number of major conventional weapons delivered to all countries in each specific year by the U.S. Figures were taken from the Stockholm International Peace Research Institute's Arms Transfer Database[41] and averaged over the five-year time period.
- Affinity index generated by Strezhnez and Voeten[42] using United Nations General Assembly Voting Data. Values for the affinity index (s3un) include 3 categories: 1 = "yes" or approval for an issue, 2 = abstain, 3 = "no" or disapproval for an issue. The resulting index ranges from -1 to +1, where the former depicts least similarity in voting patterns and the latter most similarity in voting patterns within the General Assembly. Data was included for the U.S. and all countries in Africa over 1970 to 2010. Again, averages were calculated for the five-year time periods.

[40] Freedom House (http://www.freedomhouse.org/report-types/freedom-world)
[41] Stockholm International Peace Research Institute (http://www.sipri.org/databases/armstransfers)
[42] UN General Assembly Voting Data
(http://dvn.iq.harvard.edu/dvn/dv/Voeten;jsessionid=9638f07d26a76cd8e6881c2be7ae)

- Value of annual exports provided to all countries in Africa by the U.S. in each year included in study, reported in millions of dollars. Data was taken from the U.S. Census Bureau[43] and averaged over five-year periods.
- Value of annual imports from all countries in Africa to the U.S. in each year, reported in millions of dollars. These figures were also taken from the Census Bureau and averaged over the five-year blocks.

C. METHODOLOGY

Some of the variables were transformed for purposes of statistical modeling. ODA averages were transformed into log values. The same was done for GDP per capita, total population, and the value of imports and exports. Additional variables were also generated. The log of GDP per capita and the log of total population were squared. This is because I wanted to include GDP per capita and total population both linearly and quadratically in the model in order to analyze their effect over an expanded magnitude.

In trying to determine what type of statistical model to use and given that the study was using panel data, both a fixed effects and a random effects model was run for all iterations. The results from both kinds of models were put through the Hausman test. In the cases where the test generated a p-value of less than 0.05, a fixed effects model was favored. Models 1, 2, 3, 4, and 6 use country and time fixed effects. Models 5, 7, and 8 use country and time random effects.

I tested the models for the presence of autocorrelation, heteroskedacity, misspecification, and multi-collinearty. After performing the xtserial regression command to detect autocorrelation, I corrected for it by incorporating time effects in the

[43] U.S. Department of Commerce, Bureau of the Census, Foreign Trade Division (http://www.census.gov/foreign-trade/statistics/country/)

model. The xttest3 revealed the presence of heteroskedacity. To reduce its effect, a robust regression was run in the case of each model. An inspection of the histograms and residual scatter plots of all variables showed no evidence of misspecification in the final models. Transforming some of the variables through the log function overcame any issues of misspecification that may have existed. There is some evidence of multi-collinearty. The VIF test generated values of greater than 10 for the log GDP per capita-squared and the log population-squared variables. These are thus dropped in successive iterations of the model after establishing their effect on log ODA in the first model.

Section V: Results

Several regressions were run and variables were added sequentially. The sections below provide the aggregate results from each model explaining the motivations of bilateral ODA to Africa by the U.S. over 1971-2010 (see Appendices 4 – 11 for exact regression outputs).

A. What are the Motivations of Aid to Africa

For this round of statistical modeling, only a country and time fixed effects method has been employed as it yielded more efficient results (see Table 3). All three of the iterations of the model are statistically significant with F-probabilities of 0.00. In the first round, all variables except for population are statistically significant. However, population-squared is significant at the 0.01 level. The size of the coefficient indicates that as the size of the population of a country in Africa increases, the amount of aid given rises as well and that, too, at an increasing rate. This contradicts some of the earlier literature on U.S. aid that shows that more aid is given to smaller countries. GDP per capita is significant both when entered linearly and quadratically, indicating that development aid increases with GDP per capita, but at a decreasing rate. Over time, as a country becomes wealthier, aid amounts become smaller. Life expectancy and aid work in opposite directions. As the former improves, development aid goes down. Infant mortality and development aid also move in opposite directions, which is not a positive trend given that development assistance should follow development needs of recipient countries.

For the second iteration of the model, I included some additional variables that could explain levels of aid. These variables pertain to the economic and political

governance or policies of a recipient country. The R-square value goes down from 0.465 to 0.429, thus reducing the explanatory power of the model. However, this is most likely because two of the significant variables from the first iteration have been dropped in this round – log GDP-squared and log population-squared. GDP per capita, life expectancy, and infant mortality are no longer significant in this model, indicating that development needs of recipient countries are not a motivation of bilateral aid. Population becomes significant in this iteration of the model, and it is positively correlated with aid -- more aid goes to more populous countries. Of the new variables, only the political rights variable is statistically significant. As a country's score becomes worse on the political rights index, the amount of aid received goes down. There is no correlation with the economic governance of a recipient, indicating that countries are not rewarded for adopting more open economies or attracting more foreign investment.

For the final iteration of this model, I added additional variables that served as proxies for strategic interests (similarity of voting in the UN General Assembly as a proxy for political alliances and number of conventional arms provided as a proxy for military interests). The inclusion improves the R-square value and brings it to 0.44. Thus, 44 percent of the variability in U.S. bilateral development aid to Africa is being explained by the variables included in this model. Population and political rights remain statistically significant and the size of both their coefficients has increased. Life expectancy once again becomes significant in this model. But the size of its effect on aid motivations is very small. Of the new variables, the affinity of nations index is significant and shows that as an African country votes more similar to the U.S. in the United Nations General Assembly sessions, the amount of aid provided by the U.S. goes up. This result is indicative of the significance of political alliances in development aid giving.

	LN (Bilateral ODA)		
	(FE1)	(FE2)	(FE3)
Number of Observations	340	276	275
LN (GDP per capita)	4.760***	-0.394	-0.341
	(1.19)	(0.39)	(0.39)
$[LN (GDP per capita)]^2$	-0.353***		
	(0.08)		
LN (Population)	-4.876	5.204*	5.493*
	(3.17)	(2.27)	(2.28)
$[LN (Population)]^2$	0.28**		
	(0.09)		
Life Expectancy	-0.088**	-0.066	-0.073*
	(0.03)	(0.03)	(0.03)
Infant Mortality	-0.015*	-0.016	-0.019
	(0.01)	(0.01)	(0.01)
FDI as % of GDP		0.024	0.021
		(0.01)	(0.02)
Trade Openness		-0.426	-0.27
		(0.47)	(0.49)
Political Rights		-0.292*	-0.294**
		(0.11)	(0.10)
Civil Liberties		0.239	0.252
		(0.23)	(0.23)
Arms Delivered			-0.00
			(0.00)
UN GA Affinity			2.763*
			(1.15)
R^2	0.465	0.429	0.444
	* p < 0.05	** p < 0.01	*** p < 0.001

Table 3: Fixed Effects Regression: Dependent Variable: Log of aid (five year averages) 1971-2010

Overall, the statistical analysis shows that when it comes to U.S. development aid, the factors that hold the most explanatory power are related to the political and strategic priorities of the U.S. -- a country's score on the political rights index as it democratizes; the similarity of a country's voting pattern with that of the U.S. within the UN General

Assembly. Aid also aligns with larger country populations, which is very interesting given previous research on this variable estimated that more aid goes to countries with a smaller population. The size effect of life expectancy is too small to be of policy interest. Moreover, it does not serve as a fully adequate proxy for the development status of a country.

B. The Egypt Effect

Egypt is a unique case within Africa in that it has had a special strategic relationship with the U.S. This has meant that, while it may be more developed than many other countries in Africa, it receives a significant chunk of foreign aid from the U.S.; especially since the signing of the Camp David Peace Accords. Thus, it could be insightful to drop Egypt from the model and analyze how the exclusion affects the results. Table 4 provides aggregate figures from the resulting output.

All three iterations of the sequential model are repeated, only this time without Egypt. The resulting models are all statistically significant overall with p-values of 0.00. In the first iteration, the same variables are significant as before and the differences in the coefficients are not that large. More aid is given to middle income countries as opposed to low-income countries. Larger countries receive more aid. Higher life expectancy within a recipient is correlated with lower aid. However, low infant mortality rates do not motivate greater aid giving.

In the second iteration, the same variables are significant as in the first iteration. The size effect of population increases and shows that greater aid is given to countries with larger population sizes. GDP per capita and life expectancy have a negative relationship with aid. This is a positive marker about aid motivations as it shows that less

aid is given to countries with a higher GDP per capita and life expectancy rate. Infant mortality has a negative relationship with aid as well, which is once again not good. The exclusion of Egypt has not changed our results in this regard. Of the new variables, political rights retains its statistical significance and the direction of its relationship with aid. More aid is given to democratizing countries. Interestingly, minus Egypt, the net inflow of FDI as a percentage of the recipient country's GDP becomes significant. As this number rises, so does aid. This indicates that U.S. aid modestly correlates with open trade and investment policies within a recipient country in Africa.

With the third iteration, the model now includes all the chosen explanatory variables regarding aid's motivations. Compared to the previous regression output in which Egypt was included, the results are fairly similar. Population size, status of political rights, and similarity in UN General Assembly voting patterns are significant. The size of the coefficients for all three variables is smaller but not very different from the previous model.

Taken together, the model that excludes data from Egypt does not provide very different results compared to the model that includes Egypt. This indicates a positive trend in that the total development aid given to Africa is not significantly driven by the amounts given to Egypt due to its strategic significance to the U.S. However, it still demonstrates that overall development aid patterns align with the political and strategic priorities of the U.S. more than the development needs of recipient countries.

	LN (Bilateral ODA)		
	(FE4)	(RE5)	(FE6)
Number of Observations	332	268	267
LN (GDP per capita)	4.584***	-0.469**	-0.315
	(1.16)	(0.16)	(0.42)
[LN (GDP per capita)]^2	-0.339***		
	(0.08)		
LN (Population)	-6.06	0.814***	5.244*
	(3.39)	(0.08)	(2.45)
[LN (Population)]^2	0.309**		
	(0.09)		
Life Expectancy	-0.086**	-0.1***	-0.069
	(0.03)	(0.02)	(0.04)
Infant Mortality	-0.017*	-0.024***	-0.019
	(0.01)	(0.01)	(0.01)
FDI as % of GDP		0.045**	0.022
		(0.02)	(0.02)
Trade Openness		0.169	-0.276
		(0.26)	(0.5)
Political Rights		-0.316*	-0.275*
		(0.12)	(0.1)
Civil Liberties		0.131	0.248
		(0.16)	(0.24)
Arms Delivered			0.00
			(0.00)
UN GA Affinity			2.694*
			(1.13)
R^2	0.45		0.409
	* p < 0.05	** p < 0.01	*** p < 0.001

Table 4: Fixed and Random Effects Regression Without Egypt: Dependent Variable: Log of aid (five year averages) 1971-2010

C. ADDITIONAL VARIABLES

This report has used similarity in UN General Assembly voting patterns and transfers of conventional arms as proxies for a strategic relationship between the U.S. and countries in Africa. These variables only consider the political-military aspect of strategic significance. It may be useful to also consider bilateral trade ties. As the chapter reviewing existing literature on the motivations of U.S. development aid shows, aid is often driven by the viability of foreign markets and exchange of goods. The next

iterations of the model thus use import and export variables to analyze aid giving patterns. There are some limitations to this model. First, due to the non-availability of trade figures for all countries over all the years included in this study, only 1996-2010 data is being used. Second, the variable for arms delivered has been dropped for this iteration since it had limited explanatory value in previous models. This result is somewhat surprising. But it may likely be because: a) the study only considers conventional arms trade, and b) uses the number of arms delivered in a particular year to a particular country by the U.S. instead of the dollar value of the trade. Additionally, it may be due to the fact that this report only considers arms provided by the U.S. Results may have been different had I included the total arms delivered by all suppliers world-wide as a proxy for U.S. strategic interests in a country within the considerations of larger geo-strategic interests.

Table 5 shows results from the regressions with and without Egypt using 1996-2010 data. Both outputs are significant overall with p-values of 0.00. The results are fairly similar both with and without Egypt, again indicating that this one country is not significantly driving the aid patterns to Africa. In both iterations of the model, GDP per capita, life expectancy, and the value of exports is highly significant. For the first two, the relationship is negative. As incomes and life expectancy rise, the amount of aid given goes down. This shows that in the short-term at least, aid patterns are modestly motivated by the development needs of recipient countries. The third, value of exports, is positively correlated with aid. This shows that as the value of exports to a country rises, the amount of aid given also rises. The result is indicative of strategic economic priorities that motivate even development aid allocations. Previous studies have also found evidence of the significance of export markets as a motivation for the aid given by the U.S. Interestingly, when Egypt is taken out, open trade policies become significant. The

results are surprising and show that as a country becomes an open trade economy, the amount of bilateral development aid given by the U.S. goes down. This indicates that good economic policies are not a motivational factor for U.S. aid giving.

	LN (Bilateral ODA)	
	(RE7)	(RE8)
Period	1996-2010	1996-2010
Number of Observations	118	115
LN (GDP per capita)	-1.194***	-1.168 ***
	(0.29)	(0.25)
LN (Population)	0.359*	0.345*
	(0.18)	(0.17)
Life Expectancy	-0.184***	-0.191***
	(0.03)	(0.04)
Infant Mortality	-0.037	-0.036
	(0.01)	(0.01)
FDI as % of GDP	0.009	0.01
	(0.02)	(0.02)
Trade Openness	-0.508	-0.506*
	(0.31)	(0.22)
Political Rights	-0.071	-0.058
	(0.14)	(0.12)
Civil Liberties	-0.03	-0.086
	(0.18)	(0.16)
UN GA Affinity	2.387	2.386
	(1.65)	(1.68)
LN (Imports)	-0.078	-0.063
	(0.08)	(0.08)
LN (Exports)	0.907***	0.828***
	(0.14)	(0.16)
* p < 0.05	** p < 0.01	*** p < 0.001

Table 5: Random Effects Regression With and Without Egypt: Dependent Variable: Log of aid (five year averages) 1996-2010

This model provides an analysis of U.S. development aid over a shorter period of time. The results confirm the dualism in aid's motivations -- aid is motivated both by humanitarian concerns and by national strategic interests.

Section VI: Looking Ahead

A. Policy Implications

Research on development aid not only gives prominence to the impact of development interventions, but also its purposes -- where the purposes "are frequently as much the result of what happens inside of a donor government's borders as what happens outside them".[44] Building an empirical foundation upon which to answer the question 'What motivates aid giving patterns?' can be a key step in understanding why aid is given and whether or not its goals are being met.

According to researchers interested in aid effectiveness, a recurring problem with foreign aid (and one that necessitates reform) is that it does not respond to the development needs of recipient countries. To them, evidence suggests that U.S. assistance tends to be a reflection of its own national policy themes or political agenda. Policy makers on the other hand, may look at the limited effectiveness of development aid and question its need. This dichotomy between aid's perceived motivations becomes especially stark during times of domestic crises. This was evident in the last few years when the U.S. experienced economic shocks. As the Congress pushed for budgetary constraint, development aid became an easy target for budget cuts.

What is missing in the debate about aid is an acknowledgement that if development aid is being provided for motivations other than development, then aid's impact or effectiveness cannot be measured by its development outcomes alone.

This report presents findings from a study of the motivations of U.S. aid to countries in Africa in order to be able to understand the trends that have governed allocations and draw conclusions about the question of why aid is given. The report is a

[44] Lancaster 2007

contribution towards the larger body of research pertaining to U.S. development aid that studies whether bilateral aid aligns with the development needs of recipient countries or whether it speaks more to considerations that are exogenous to the needs of the African countries themselves, i.e. the national strategic interest or political priorities of the U.S. The central policy thrust here is that development aid cannot be measured against desired development outcomes when it is being motivated by non-development related factors.

B. Scope for Future Research

Most of the literature on U.S. bilateral development aid has focused on the differentiation between recipient needs versus donor interests using varying interpretations. Over time, a third dimension was introduced that analyzed whether the quality of governance affected the motivations of aid giving in any way. This report considered all three elements and built a holistic model of U.S. aid patters to African countries over time, and found that when it comes to aid that is specifically addressed towards development projects in Africa, the strategic considerations and political priorities of the U.S. are just as important, if not more important, than the development needs or economic performance of recipient countries. For instance, political allies and countries that democratize receive more aid from the U.S., ceteris paribus.

Future research could address added elements of donor behavior with regards to the motivations of aid giving. One key variable to consider is the impact of international norms surrounding development priorities and aid patterns. Institutions such as the World Bank and the UN often set the normative stage with regards to aid policy and trends in allocations. A future study could refine analysis of aid's motivations by considering cases where the international community set a clear development agenda that subsequently

influenced aid allocations of all donors. The Millennium Development Goals (MDGs) are a great example of this exercise in international norm setting. A statistical analysis of aid patterns for specific purposes could uncover whether there was a significant shift in aid giving pre- and post-MDGs. Should there be evidence of such aid patterns, this would be an added element to consider in the mix of motivations driving aid giving since it is driven by the international community's understanding of aid policy and acts independently of recipient development needs and/or donor strategic interests.

Appendices

APPENDIX 1 – MAP OF AFRICA

Analyzing the Motivations of U.S. Development Aid to Africa

Author: Izzah Akram
Datum: GCS WGS 1984
Date: May 1, 2013
Projection: Africa Lambert Conformal Conic
Source: Diva-GIS Shapefiles (http://www.diva-gis.org/)

APPENDIX 2 – LIST OF COUNTRIES INCLUDED IN STUDY

- Algeria
- Angola
- Benin
- Botswana
- Burkina Faso
- Burundi
- Cameroon
- Cape Verde
- Central African Republic
- Chad
- Comoros
- Cote D'Ivoire
- DRC
- Djibouti
- Egypt
- Equatorial Guinea
- Eritrea
- Ethiopia
- Gabon
- Ghana
- Guinea
- Guinea-Bissau
- Kenya
- Lesotho
- Liberia
- Libya
- Madagascar
- Malawi
- Mali
- Mauritania
- Mauritius
- Morocco
- Mozambique
- Namibia
- Niger
- Nigeria
- Republic of the Congo
- Rwanda
- São Tomé and Príncipe
- Senegal
- Seychelles
- Sierra Leone
- Somalia
- South Africa
- Sudan
- Swaziland
- Tanzania
- The Gambia
- Togo
- Tunisia
- Uganda
- Zambia
- Zimbabwe

APPENDIX 3 – DESCRIPTION OF DATA

Variable	Description	Source
GDP per capita (PPP) in constant 2005 international dollars	PPP GDP is gross domestic product converted to international dollars using purchasing power parity rates. An international dollar has the same purchasing power over GDP as the U.S. dollar has in the United States. GDP at purchaser's prices is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products.	World Bank Data
Population	Size of total population	World Bank Data
Infant mortality rate (per 1,000 live births)	Estimates of levels and trends in child mortality	World Bank Data
Life expectancy at birth	Life expectancy at birth indicates the number of years a newborn infant would live if prevailing patterns of mortality at the time of its birth were to stay the same throughout its life.	World Bank Data
Net inflow of foreign direct investment as percentage of country's GDP	Net inflows of investment to acquire a lasting management interest (10 percent or more of voting stock) in an enterprise operating in an economy other than that of the investor. It is the sum of equity capital, reinvestment of earnings, other long-term capital, and short-term capital as shown in the balance of payments.	World Bank Data

Variable	Description	Source
Trade openness	A country is characterized as closed if it has any of the following: average tariff rates higher than 40 percent; non-tariff barriers covered on average more than 40 percent of imports; it had a socialist economic system; it had a state monopoly of major exports; or its black market premium exceeded 20 percent.	Sachs, Jeffrey; Warner, Andrew; Wacziarg, Romain and Welch, Karen Horn (SWWW)
Political rights	The state of democracy and political rights in a country scored on a scale from 1 to 7, where 1 is the best and 7 worst.	Freedom House (various years)
Civil liberties	The status of civil liberties in a country scored on a scale from 1 to 7, where 1 is the best and 7 worst.	Freedom House (various years)
Major conventional weapons delivered	Includes Aircraft; Air Defence Systems; Anti-Submarine Warfare Weapons; Armoured Vehicles; Artillery; Engines; Missiles; Sensors; Satellites and Ships.	Stockholm International Peace Research Institute Arms Transfer Database
Affinity of nations index	Index ranges from -1 to +1, where the former depicts least similarity in voting patterns and the latter most similarity in voting patterns within United Nations General Assembly.	Strezhnez, Anton and Voeten, Erik
Exports in millions of dollars	Value of annual exports of goods to countries.	U.S. Department of Commerce, Bureau of the Census, Foreign Trade Division (various years)

Variable	Description	Source
Imports in millions of dollars	Value of annual imports of goods from countries.	U.S. Department of Commerce, Bureau of the Census, Foreign Trade Division (various years)

APPENDIX 4 – ITERATION 1 REGRESSION RESULTS: FIXED EFFECTS REGRESSION WITH DEPENDENT VARIABLE LOG OF AID (FIVE YEAR AVERAGES) 1971 TO 2010

```
. xi: xtreg logoda loggdp loggdp2 logpop logpop2 lifeexpectancyatbirthtotalyears m
> ortalityrateinfantper1000livebi i.time2, fe robust
i.time2           _Itime2_1-8         (naturally coded; _Itime2_1 omitted)

Fixed-effects (within) regression               Number of obs      =       340
Group variable: country2                        Number of groups   =        50

R-sq:  within  = 0.4646                         Obs per group: min =         2
       between = 0.6332                                        avg =       6.8
       overall = 0.4565                                        max =         8

                                                F(13,49)           =     29.08
corr(u_i, Xb)  = -0.9583                        Prob > F           =    0.0000

                                  (Std. Err. adjusted for 50 clusters in country2)
------------------------------------------------------------------------------
             |               Robust
      logoda |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
     loggdp |    4.759613   1.185316     4.02   0.000     2.377632    7.141595
    loggdp2 |    -.353074   .0836956    -4.22   0.000    -.5212667   -.1848813
     logpop |   -4.875742   3.171004    -1.54   0.131    -11.24811    1.496628
    logpop2 |    .2798498   .0919378     3.04   0.004     .0950939    .4646058
lifeexpectanc~s |   -.0880152   .0257863    -3.41   0.001    -.1398347   -.0361956
mortalityrate~i |   -.0152168   .0069442    -2.19   0.033    -.0291717   -.0012618
   _Itime2_2 |    .2269589   .3430264     0.66   0.511    -.4623784    .9162962
   _Itime2_3 |    .7545521    .484574     1.56   0.126    -.2192357     1.72834
   _Itime2_4 |    .1745453    .665535     0.26   0.794    -1.162897    1.511988
   _Itime2_5 |   -.6344927   .8114697    -0.78   0.438    -2.265202    .9962167
   _Itime2_6 |   -1.696811   1.019665    -1.66   0.102    -3.745905    .3522817
   _Itime2_7 |   -1.039161   1.254533    -0.83   0.412    -3.560239    1.481918
   _Itime2_8 |   -.5050963   1.358971    -0.37   0.712    -3.236051    2.225858
       _cons |    14.74139   30.58632     0.48   0.632    -46.72412    76.20689
-------------+----------------------------------------------------------------
     sigma_u |   4.5907156
     sigma_e |   1.0951228
         rho |    .94615714   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

APPENDIX 5 – ITERATION 2 REGRESSION RESULTS: FIXED EFFECTS REGRESSION WITH DEPENDENT VARIABLE LOG OF AID (FIVE YEAR AVERAGES) 1971 TO 2010

```
. xi: xtreg logoda loggdp logpop lifeexpectancyatbirthtotalyears mortalityrateinfa
> ntper1000livebi foreigndirectinvestmentnetinflow tradeopenness politicalrights c
> ivilliberties i.time2, fe robust
i.time2           _Itime2_1-8         (naturally coded; _Itime2_1 omitted)

Fixed-effects (within) regression               Number of obs      =       276
Group variable: country2                        Number of groups   =        41

R-sq:  within  = 0.4286                         Obs per group: min =         2
       between = 0.5830                                        avg =       6.7
       overall = 0.3868                                        max =         8

                                                F(15,40)           =     25.28
corr(u_i, Xb)  = -0.9787                        Prob > F           =    0.0000

                                  (Std. Err. adjusted for 41 clusters in country2)
------------------------------------------------------------------------------
             |               Robust
       logoda |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      loggdp |  -.3940436   .3853111    -1.02   0.313    -1.172786    .3846992
      logpop |   5.203586   2.270045     2.29   0.027      .615653    9.791518
lifeexpectanc~s |  -.065593   .0345375    -1.90   0.065    -.135396      .00421
mortalityrate~i |  -.0156116   .0113097    -1.38   0.175    -.0384693    .0072461
foreigndirect~w |   .0242265   .0139846     1.73   0.091    -.0040375    .0524905
  tradeopenness |  -.4256827   .4702574    -0.91   0.371    -1.376108     .524743
politicalrights |  -.2915372   .1118873    -2.61   0.013    -.5176699   -.0654046
 civilliberties |   .2388065   .2346938     1.02   0.315    -.2355274    .7131403
      _Itime2_2 |  -.1559407   .4667948    -0.33   0.740    -1.099368    .7874869
      _Itime2_3 |   .1036718   .7592206     0.14   0.892     -1.43077    1.638114
      _Itime2_4 |  -.7333698   1.081748    -0.68   0.502    -2.919664    1.452925
      _Itime2_5 |  -1.627702   1.311864    -1.24   0.222    -4.279077    1.023674
      _Itime2_6 |  -2.803331   1.675102    -1.67   0.102    -6.188838    .5821758
      _Itime2_7 |  -2.431791    2.04018    -1.19   0.240    -6.555149    1.691567
      _Itime2_8 |  -2.052111   2.266031    -0.91   0.371    -6.631931    2.527709
          _cons |  -55.44422   32.93744    -1.68   0.100    -122.0133    11.12483
------------------------------------------------------------------------------
        sigma_u |  6.8969191
        sigma_e |  1.1607659
            rho |   .97245464   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

APPENDIX 6 – ITERATION 3 REGRESSION RESULTS: FIXED EFFECTS REGRESSION WITH DEPENDENT VARIABLE LOG OF AID (FIVE YEAR AVERAGES) 1971 TO 2010

```
. xi: xtreg logoda loggdp logpop lifeexpectancyatbirthtotalyears mortalityrateinfa
> ntper1000livebi foreigndirectinvestmentnetinflow tradeopenness politicalrights c
> ivilliberties armsdelivered ungaaffinity i.time2, fe robust
i.time2           _Itime2_1-8         (naturally coded; _Itime2_1 omitted)

Fixed-effects (within) regression               Number of obs      =       275
Group variable: country2                        Number of groups   =        41

R-sq:  within  = 0.4436                         Obs per group: min =         2
       between = 0.5838                                        avg =       6.7
       overall = 0.3863                                        max =         8

                                                F(17,40)           =     24.40
corr(u_i, Xb)  = -0.9808                        Prob > F           =    0.0000

                                  (Std. Err. adjusted for 41 clusters in country2)
------------------------------------------------------------------------------
             |               Robust
      logoda |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
     loggdp |  -.3406749   .3904054    -0.87   0.388    -1.129714    .4483639
     logpop |    5.49286   2.276513     2.41   0.021     .8918563    10.09386
lifeexpectanc~s |  -.0733842   .0341419    -2.15   0.038    -.1423875   -.004381
mortalityrate~i |  -.0187254   .0107694    -1.74   0.090    -.0404911    .0030403
foreigndirect~w |   .0214808    .019784     1.09   0.284     -.018504    .0614657
  tradeopenness |  -.2702426   .4925743    -0.55   0.586    -1.265773    .7252872
politicalrights |  -.2942998   .1013262    -2.90   0.006    -.4990877   -.0895119
 civilliberties |   .2516245   .2271309     1.11   0.275    -.2074242    .7106731
  armsdelivered |  -.0000556   .0000441    -1.26   0.215    -.0001448    .0000336
   ungaaffinity |   2.763095   1.153242     2.40   0.021     .4323054    5.093884
      _Itime2_2 |   .0222798    .479931     0.05   0.963     -.947697    .9922566
      _Itime2_3 |   1.466372   .9178621     1.60   0.118    -.3886967     3.32144
      _Itime2_4 |   .7160134   1.251651     0.57   0.570    -1.813667    3.245694
      _Itime2_5 |  -.7229269   1.333923    -0.54   0.591    -3.418886    1.973032
      _Itime2_6 |  -2.019163   1.664707    -1.21   0.232    -5.383662    1.345337
      _Itime2_7 |  -.9514164   2.068002    -0.46   0.648    -5.131005    3.228173
      _Itime2_8 |  -.5983694   2.299191    -0.26   0.796    -5.245207    4.048468
          _cons |  -59.73444   33.23136    -1.80   0.080    -126.8975    7.428646
------------------------------------------------------------------------------
        sigma_u |  7.3607197
        sigma_e |  1.1526687
            rho |  .97606426   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

APPENDIX 7 – ITERATION 4 REGRESSION RESULTS: NON-EGYPT FIXED EFFECTS REGRESSION WITH DEPENDENT VARIABLE LOG OF AID (FIVE YEAR AVERAGES) 1971 TO 2010

```
. xi: xtreg logoda loggdp loggdp2 logpop logpop2 lifeexpectancyatbirthtotalyears m
> ortalityrateinfantper1000livebi i.time2, fe robust
i.time2           _Itime2_1-8         (naturally coded; _Itime2_1 omitted)

Fixed-effects (within) regression               Number of obs      =       332
Group variable: country2                        Number of groups   =        49

R-sq:  within  = 0.4713                         Obs per group: min =         2
       between = 0.6109                                        avg =       6.8
       overall = 0.4261                                        max =         8

                                                F(13,48)           =     31.16
corr(u_i, Xb)  = -0.9512                        Prob > F           =    0.0000

                                  (Std. Err. adjusted for 49 clusters in country2)
------------------------------------------------------------------------------
             |               Robust
      logoda |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      loggdp |    4.583513   1.156699     3.96   0.000     2.257813    6.909213
     loggdp2 |   -.3385278   .0822555    -4.12   0.000    -.5039135   -.1731421
      logpop |   -6.059705   3.391465    -1.79   0.080     -12.8787    .7592935
     logpop2 |    .3089065   .0925621     3.34   0.002     .1227979     .495015
lifeexpectanc~s |   -.0855274   .0266691    -3.21   0.002    -.1391492   -.0319055
mortalityrate~i |   -.0168923   .0076521    -2.21   0.032    -.0322778   -.0015067
      _Itime2_2 |    .2041644   .3549009     0.58   0.568    -.5094118    .9177405
      _Itime2_3 |    .7872234   .5046673     1.56   0.125    -.2274781    1.801925
      _Itime2_4 |    .2406667    .696765     0.35   0.731    -1.160273    1.641607
      _Itime2_5 |   -.5605753   .8573495    -0.65   0.516    -2.284392    1.163241
      _Itime2_6 |   -1.600909   1.077961    -1.49   0.144    -3.768295    .5664763
      _Itime2_7 |   -.9068043   1.319846    -0.69   0.495    -3.560532    1.746924
      _Itime2_8 |   -.3459527   1.421662    -0.24   0.809    -3.204395     2.51249
          _cons |    26.60599   33.85558     0.79   0.436    -41.46522    94.67719
-------------+----------------------------------------------------------------
        sigma_u |   4.1099183
        sigma_e |   1.0983023
            rho |   .93334688   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

APPENDIX 8 – ITERATION 5 REGRESSION RESULTS: NON-EGYPT RANDOM EFFECTS REGRESSION WITH DEPENDENT VARIABLE LOG OF AID (FIVE YEAR AVERAGES) 1971 TO 2010

```
. xi: xtreg logoda loggdp logpop lifeexpectancyatbirthtotalyears mortalityrateinfa
> ntper1000livebi foreigndirectinvestmentnetinflow tradeopenness politicalrights c
> ivilliberties i.time2, re robust
i.time2           _Itime2_1-8         (naturally coded; _Itime2_1 omitted)

Random-effects GLS regression                   Number of obs      =       268
Group variable: country2                        Number of groups   =        40

R-sq:  within  = 0.3903                         Obs per group: min =         2
       between = 0.7198                                        avg =       6.7
       overall = 0.5494                                        max =         8

                                                Wald chi2(15)      =    514.02
corr(u_i, X)   = 0 (assumed)                    Prob > chi2        =    0.0000

                                 (Std. Err. adjusted for 40 clusters in country2)
------------------------------------------------------------------------------
             |               Robust
      logoda |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      loggdp |  -.4690575   .2017289    -2.33   0.020    -.8644389   -.0736761
      logpop |   .8141087   .1537334     5.30   0.000     .5127967    1.115421
lifeexpectanc~s|  -.0997852   .0341582    -2.92   0.003    -.1667339   -.0328364
mortalityrate~i|  -.0236399   .0101613    -2.33   0.020    -.0435558   -.0037241
foreigndirect~w|   .0447735    .015377     2.91   0.004     .0146351    .0749118
  tradeopenness|   -.169257   .3520082    -0.48   0.631    -.8591804    .5206663
politicalrights|  -.3161992   .1052154    -3.01   0.003    -.5224177   -.1099808
 civilliberties|   .1306192   .2117521     0.62   0.537    -.2844074    .5456457
      _Itime2_2|   .5788374   .3355269     1.73   0.084    -.0787833    1.236458
      _Itime2_3|   1.390979   .2899078     4.80   0.000     .8227704    1.959188
      _Itime2_4|   1.086351   .3779958     2.87   0.004     .3454928    1.827209
      _Itime2_5|   .5002578   .3617591     1.38   0.167     -.208777    1.209293
      _Itime2_6|  -.4068848   .5252378    -0.77   0.439    -1.436332    .6225624
      _Itime2_7|   .4050108   .6070438     0.67   0.505    -.7847732    1.594795
      _Itime2_8|   1.294207   .6032474     2.15   0.032     .1118633     2.47655
          _cons|   14.77129   4.876387     3.03   0.002     5.213751    24.32884
-------------+----------------------------------------------------------------
       sigma_u |  .35253164
       sigma_e |  1.1702462
           rho |  .08319877   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

APPENDIX 9 – ITERATION 6 REGRESSION RESULTS: NON-EGYPT FIXED EFFECTS REGRESSION WITH DEPENDENT VARIABLE LOG OF AID (FIVE YEAR AVERAGES) 1971 TO 2010

```
. xi: xtreg logoda loggdp logpop lifeexpectancyatbirthtotalyears mortalityrateinfa
> ntper1000livebi foreigndirectinvestmentnetinflow tradeopenness politicalrights c
> ivilliberties armsdelivered ungaaffinity i.time2, fe robust
i.time2           _Itime2_1-8         (naturally coded; _Itime2_1 omitted)

Fixed-effects (within) regression               Number of obs      =       267
Group variable: country2                        Number of groups   =        40

R-sq:  within  = 0.4469                         Obs per group: min =         2
       between = 0.5714                                        avg =       6.7
       overall = 0.3515                                        max =         8

                                                F(17,39)           =     27.11
corr(u_i, Xb)  = -0.9805                        Prob > F           =    0.0000

                                 (Std. Err. adjusted for 40 clusters in country2)
------------------------------------------------------------------------------
             |               Robust
     logoda  |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
     loggdp  |   -.315485   .4179149    -0.75   0.455    -1.160798    .5298277
     logpop  |   5.244005    2.44592     2.14   0.038      .296665    10.19134
lifeexpectanc~s|  -.0689356   .0362695    -1.90   0.065    -.1422977    .0044264
mortalityrate~i|  -.0190792   .0115197    -1.66   0.106    -.0423799    .0042215
foreigndirect~w|   .0219326   .0199538     1.10   0.278    -.0184278     .062293
  tradeopenness|   -.276214   .5012238    -0.55   0.585    -1.290035    .7376068
politicalrights|   -.275242   .1016513    -2.71   0.010    -.4808512   -.0696329
 civilliberties|   .2476341   .2406928     1.03   0.310     -.239213    .7344813
  armsdelivered|   .0000917   .0002103     0.44   0.665    -.0003337    .0005171
   ungaaffinity|   2.693525   1.129471     2.38   0.022     .4089553    4.978095
      _Itime2_2|   -.056148   .4854718    -0.12   0.909    -1.038107    .9258114
      _Itime2_3|    1.47269   .9333821     1.58   0.123    -.4152531    3.360634
      _Itime2_4|    .744891   1.282849     0.58   0.565    -1.849916    3.339699
      _Itime2_5|   -.6562493   1.401564    -0.47   0.642    -3.491179    2.178681
      _Itime2_6|   -1.930833   1.757123    -1.10   0.279    -5.484949    1.623283
      _Itime2_7|   -.8191244   2.176824    -0.38   0.709    -5.222166    3.583917
      _Itime2_8|   -.4380954   2.408561    -0.18   0.857    -5.309869    4.433678
          _cons|   -56.20037   35.12516    -1.60   0.118    -127.2477    14.84698
-------------+----------------------------------------------------------------
       sigma_u |  6.9672618
       sigma_e |  1.1630456
           rho |   .97288979   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

APPENDIX 10 – ITERATION 7 REGRESSION RESULTS: WITH EGYPT RANDOM EFFECTS REGRESSION WITH DEPENDENT VARIABLE LOG OF AID (FIVE YEAR AVERAGES) 1965 TO 2010

```
. xi: xtreg logoda loggdp logpop lifeexpectancyatbirthtotalyears mortalityrateinf
> antper1000livebi foreigndirectinvestmentnetinflow tradeopenness politicalrights
>  civilliberties ungaaffinity logimports logexports i.time2, re robust
i.time2           _Itime2_1-8         (naturally coded; _Itime2_1 omitted)
note: _Itime2_8 omitted because of collinearity

Random-effects GLS regression                   Number of obs      =       118
Group variable: country2                        Number of groups   =        41

R-sq:  within  = 0.7084                         Obs per group: min =         2
       between = 0.8680                                        avg =       2.9
       overall = 0.8235                                        max =         3

                                                Wald chi2(13)      =    441.99
corr(u_i, X)   = 0 (assumed)                    Prob > chi2        =    0.0000

                                  (Std. Err. adjusted for 41 clusters in country2)
------------------------------------------------------------------------------
             |               Robust
      logoda |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
     loggdp  |  -1.194458   .2693224    -4.44   0.000    -1.72232   -.6665957
     logpop  |   .3594347   .1805963     1.99   0.047     .0054726    .7133969
lifeexpectanc~s|  -.1836976   .0386272    -4.76   0.000    -.2594055   -.1079896
mortalityrate~i|  -.0371465   .0106298    -3.49   0.000    -.0579806   -.0163124
foreigndirect~w|   .0088421   .0150309     0.59   0.556    -.0206179     .038302
  tradeopenness  |  -.5076156   .2191638    -2.32   0.021    -.9371688   -.0780625
politicalrights  |  -.0706239   .1228928    -0.57   0.566    -.3114893    .1702415
 civilliberties  |  -.0297757   .1674303    -0.18   0.859    -.3579332    .2983817
   ungaaffinity  |   2.387003   1.683037     1.42   0.156    -.9116877    5.685694
     logimports  |  -.0779897   .0757334    -1.03   0.303    -.2264245    .0704451
     logexports  |   .9069207   .1710712     5.30   0.000     .5716272    1.242214
      _Itime2_6  |  -2.062499   .5559638    -3.71   0.000    -3.152168   -.9728298
      _Itime2_7  |  -.6055125   .2063709    -2.93   0.003    -1.009992   -.2010329
      _Itime2_8  |          0  (omitted)
           _cons |   32.0166   5.103928     6.27   0.000     22.01309    42.02012
-------------+----------------------------------------------------------------
         sigma_u |  .75911633
         sigma_e |  .77988827
             rho |  .48650546   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

APPENDIX 11 – ITERATION 8 REGRESSION RESULTS: NON-EGYPT RANDOM EFFECTS REGRESSION WITH DEPENDENT VARIABLE LOG OF AID (FIVE YEAR AVERAGES) 1965 TO 2010

```
. xi: xtreg logoda loggdp logpop lifeexpectancyatbirthtotalyears mortalityrateinf
> antper1000livebi foreigndirectinvestmentnetinflow tradeopenness politicalrights
>  civilliberties ungaaffinity logimports logexports i.time2, re robust
i.time2           _Itime2_1-8         (naturally coded; _Itime2_1 omitted)
note: _Itime2_8 omitted because of collinearity

Random-effects GLS regression                   Number of obs      =       115
Group variable: country2                        Number of groups   =        40

R-sq:  within  = 0.7245                         Obs per group: min =         2
       between = 0.8910                                        avg =       2.9
       overall = 0.8445                                        max =         3

                                                Wald chi2(13)      =    465.93
corr(u_i, X)   = 0 (assumed)                    Prob > chi2        =    0.0000

                                  (Std. Err. adjusted for 40 clusters in country2)
```

logoda	Coef.	Robust Std. Err.	z	P>|z|	[95% Conf.	Interval]
loggdp	-1.168181	.2511399	-4.65	0.000	-1.660406	-.675956
logpop	.3454806	.1716156	2.01	0.044	.0091203	.681841
lifeexpectanc~s	-.1912948	.0368055	-5.20	0.000	-.2634322	-.1191573
mortalityrate~i	-.0355692	.0098242	-3.62	0.000	-.0548243	-.0163141
foreigndirect~w	.0099892	.0155444	0.64	0.520	-.0204773	.0404557
tradeopenness	-.5060847	.2214688	-2.29	0.022	-.9401556	-.0720138
politicalrights	-.0577264	.1212943	-0.48	0.634	-.2954588	.180006
civilliberties	-.086319	.1643202	-0.53	0.599	-.4083807	.2357427
ungaaffinity	2.385902	1.678239	1.42	0.155	-.9033856	5.67519
logimports	-.0631273	.0771434	-0.82	0.413	-.2143255	.0880709
logexports	.828264	.1578481	5.25	0.000	.5188874	1.137641
_Itime2_6	-2.215775	.5384879	-4.11	0.000	-3.271192	-1.160358
_Itime2_7	-.6968394	.1933847	-3.60	0.000	-1.075866	-.3178124
_Itime2_8	0	(omitted)				
_cons	32.78782	4.740217	6.92	0.000	23.49716	42.07847
sigma_u	.68621017					
sigma_e	.75490323					
rho	.4524414	(fraction of variance due to u_i)				

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Vita

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